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Form 504  
 DEPARTMENT OF COMMERCE  
 U. S. COAST AND GEODETIC SURVEY

U. S. COAST AND GEODETIC SURVEY  
 L. & A  
 APR 1 1927  
 Acc. No.

State: *Oregon*

11-5613

DESCRIPTIVE REPORT.  
 B 4612  
 Hydrographic Sheet No. 4612

LOCALITY:  
 Tillamook Head  
~~Northern Oregon~~

Arch Cape  
 Gearhart to Castle Pt.

Launch Stat -

Sheet B

1926

CHIEF OF PARTY:  
 R. F. Luce

(11)

June 29, 1927.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in  
4 volumes of sounding records for

HYDROGRAPHIC SHEET 4612


Locality: OREGON COAST

Chief of Party: R. F. Luce, 1926.

Plane of reference is M L L W  
-0.2 ft. on tide staff at Fort Stevens

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of each day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

  
Chief, Division of Tides and Currents.

## DESCRIPTIVE REPORT

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To accompany Launch Hydrographic Sheet "B" Tillamook Head, Oregon.  
(Note: All directions are from true north and distances are in Statute miles.)

### INSTRUCTIONS

This work was called for under Instructions from the Director dated April 17, 1926.

### LIMITS

This sheet represents part of the hydrography executed by the launch STAR during the field season of 1926 and extends from latitude  $46^{\circ} 02'$  on the north to  $45^{\circ} 48' 45''$  on the south. It covers the area between the inshore limit of the ships' work and the beach.

### CONTROL

Control for the hydrography consisted of third order triangulation and plane table traverse location.

### GENERAL DESCRIPTION OF SHORE LINE

The description under this heading will be confined largely to the appearance of the beach near the high water line and to rocks and reefs lying close inshore. Reference is made to the descriptive report of the topographic sheet made this season covering the same stretch of coast. The general appearance of the various capes and headlands is adequately described in the Coast Pilot.

From triangulation station Gearhart to Tillamook Head, there is a gently sloping sand beach on which are Gearhart and Seaside summer resorts. This beach line is broken by the entrance of the Necanicum River in latitude

46° 01'.

Tillamook Head is a very prominent headland, heavily timbered and rising abruptly to a height of about 1200 ft. There are several rocks awash and reefs jutting out from the various point. Sunken rock symbols mark the ends of these reefs as developed by the soundings. The ten fathom curve here approaches to within 1/4 mile of the beach, but after leaving the Head to the southward, it runs parallel to the beach at one mile offshore to the lower limit of the sheet.

Islet I is the northern and highest of three prominent sharp pointed rocks off Tillamook Head. It should not be confused with a similar but lower rock off the point 1/2 mile south. Topographic signal Castle is an arch rock the largest of a group of rocks lying two miles south east of Tillamook Lighthouse. The arch is conspicuous from the southwest. Signal "ROCK" is the northern and white dome-shaped of four large rocks off Chapman Point.

Haystack Rock, appropriately named, and the most prominent landmark between Tillamook Head and Cape Falcon, is 258 ft. in height and lies one mile below the mouth of Elk River. There are several small needle rocks showing near and to the south of Haystack.

Rocks awash constituting danger to navigation near Haystack are taken up under the heading "Dangers to Navigation".

There are several smaller rocks close inshore between Haystack and Arch Cape but are of small importance. There is a sharp cone shaped rock 107 ft. in height on the low water line just off Arch Cape.

#### BOTTOM CHARACTERISTICS

The character of the bottom is uniformly sloping and sandy throughout the limit of the sheet, except as shown under heading "Dangers to Navigation".

North of Tillamook<sup>Head</sup>, the 10 fathom curve lies two miles offshore . The 15 fathom curve shows considerable irregularity over the rocky bottom between Tillamook Head and the outlying rock awash but a least depth of 13 fathoms was obtained on this eastern channel line. The 10 fathom curve in this vicinity approaches to within 1/4 mile of the beach, but after leaving the Head to the southward, it runs parallel to the beach one mile offshore to the lower limit of the sheet.

#### DANGERS TO NAVIGATION

##### A. Inshore dangers:

An apparently lone rock awash at half tide lies 1/3 mile S.W. of Haystack Rock. Other inshore rocks and reefs are so close to the beach as not to constitute dangers to navigation and are taken up under previous heading in this report.

##### B. Outlying Dangers

The outlying dangers on the sheet are four in number as follows:

Rock awash at high tides 3/8 of a mile east of Tillamook Rock Light-House.

Rock awash at high tide 6/10 mile W.S.W. from Haystack Rock. This danger is not shown on present charts.

A pair of rocks awash at high tide 1.5 miles S.S.W. of Haystack Rock.

Castle rock 157 ft. in height is 0.6 mile W.N.W. of Arch Cape. This is oblong in shape with its major axis in an east west direction.

All of the above rocks show the same characteristics in that deep water exists close to them and the soundings show no evidence of jutting reefs. This fact is also true of Tillamook Rock. There is no kelp showing near any of these rocks.

### CURRENTS

The currents along the beach are in general southerly during the summer but depend largely on the strength and direction of the wind, northerly set usually existing in southerly weather. Very strong southerly currents were experienced between Tillamook Rock and the beach.

### AIDS TO NAVIGATION

The only important landmarks and aids to navigation are adequately described in the Pacific Coast Pilot.

### CHANNEL LINES

Clear channels apparently exist both east and west of the rock awash east of Tillamook L. H. and between the other outlying dangers and the beach, but owing to the nature of these abruptly rising rocks these channels cannot be recommended from sounding lead results alone.

### ANCHORAGES

There is no protected anchorages along this section of the coast.

### NEW NAMES

"Haystack Rock"; well known local name due to resemblance to a haystack.

"Castle Rock"; well known local name due to resemblance to a castle.  
The triangulation name is "SQUARE".

TIDAL DATA

North of Tillamook Rock, tide reducers obtained from the Fort Stephens gauge were used. When these were not available reducers were obtained from the Tongue Point gauge, and when neither of these were available, Garibaldi reducers were used. The proper time corrections were made in each case.

South of Tillamook Rock reducers from the Garibaldi gauge were used, except that when these were not available those from Fort Stephens or Tongue Point gauges were used.

The time differences are as follows:

Open coast to Jetty - - - - - - - - - - -05 minutes.

Open coast to Ft. Stephens - - - - - - - - -35 minutes.

Open coast to Tongue Point - - - - - - - -75 minutes.

Open coast to Garibaldi - - - - - - - -45 minutes.

The time differences between the Fort Stephens, Tongue Point, and Garibaldi gauges were determined by simultaneous observations at the gauges.

For the area south of an east and west line through the northern part of Tillamook Head, the tide arrives outside of the 30 fathom curve 10 minutes earlier than for points along the open coast. North of this east-west dividing line, the inside limit for this additional 10 minute time allowance was taken as a line drawn from the 30 fathom curve off Tillamook Head to the 10 fathom curve off the mouth of the Columbia River.

Statistics for Launch Sheet 'B'

Date, 1926	Letter	Volume	Positions	Soundings	Miles (Statute)	Vessel	
July	22	A or a	1	58	259	13.5	"Star"
"	23	B or b	1	56	256	12.5	
"	27	C or c	1	140	334	17.0	
"	28	D or d	1	88	232	13.0	
"	29	E or e	182	140	183	18.5	
"	30	F or f	2	173	374	20.0	
August	2	G or g	2	152	219	16.0	
	3	H or h	2	116	187	12.2	
	6	J or j	3	109	288	13.5	
	9	K	3	113	236	15.0	
	11	L	3	123	486	18.0	
	12	M	4	148	558	25.0	
	13	N	4	91	100	10.0	
	16	P	4	69	69	7.0	
	19	Q	4	26	26	2.5	
	20	R	4	96	97	11.4	
October	4	S	4	28	39	4.0	
				<u>1726</u>	<u>3943</u>	<u>229.1</u>	

Plane of reference: M.L.L. Water.  
 Unit for soundings: Fathoms.  
 Location of gauge: Ft Stephens  
 and Nauihaldi, Ore.

Plane of reference, reading on gauge: ft.  
 Lowest tide observed, " " " : ft.  
 Highest tide observed, " " " : ft.

IN REPLY ADDRESS THE DIRECTOR  
U. S. COAST AND GEODETIC SURVEY  
AND NOT THE SIGNER OF THIS LETTER

AND REFER TO No. 11-DRM

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

WASHINGTON September 28, 1927.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4612

Surveyed in 1926

Chief of Party, R. F. Luce.

Protracted by F. W. Hough and J. C. Bose.

Soundings plotted by R. L. Pfau.

Verified and inked by J. D. Torrey.

1. The records conform to the requirements of the General Instructions except in a few instances "do" is used instead of name of signal and but few bottom characteristics are recorded.
2. The plan and character of development conform to the requirements of the General Instructions.
3. The plan and development satisfy the specific instructions except that several outside lines are run with the shore line instead of normal to it.
4. There are no lines crossing and none are required by specific instructions.
5. The information for drawing depth curves is sufficient except close inshore and adjacent to several rocks.
6. The protracting done by the field party was found accurate.
7. The plotting done by the field party was found generally good.
8. The junctions with the several sheets are satisfactory.
9. All outlying rocks are well defined and no additional surveying is necessary.
10. Reviewed by J. D. Torrey, September, 1927.

Approved:

*Sheet inspected by:*  
*A. P. S.*

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Chief, Section of Field Records (Charts)

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Chief, Section of Field Work (H. & T.)

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The finished Hydrographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

4612

U. S. Coast and Geodetic Survey.

Register No. <sup>B</sup> 4612

State . . . . . Oregon . . . . .

General locality *Tillamook Head, Oregon Coast.*

Locality . . . *Gearheart to <sup>Arch Cape</sup> Castle Rock.*

Chief of party *R. F. Luce, H. & G. Engineer.*

Surveyed by *Floyd W. Hough, Jr. H. & G. Engineer* and *H. P. Odessey \**

Date of survey *July 22 - August 20, 1926.*

Scale . . . . . *1:20,000*

Soundings in . . *Fathoms*

Plane of reference *M. L. L. W.*

Protracted by *F. W. H. & J. C. B.* Soundings in pencil by *R. L. P.*

Inked by *J. D. Torrey.* . . Verified by *J. D. Torrey.*

Records accompanying sheet (check those forwarded):

Des. report,  Tide books,  Marigrams,  Boat sheets,

Sounding books,  Wire-drag books,  Photographs.

Data from other sources affecting sheet . . . . .

Remarks:

*Launch Star Hydrographic Sheet "B"*

*\* A and B days surveyed by H. P. Odessey, H. & G. Engineer.*